Remarks

In light of the above and the discussion of prior art in the attached Petition to Make Special, Applicant respectfully submits that the application now stands in formal condition for allowance.

Respectfully submitted,

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MULTI-PURPOSE FLOAT EQUIPMENT AND METHOD

The present invention is a continuation-in-part of U.S. Patent Application Number 09/524,117, filed March 13, 2000.

FIELD OF INVENTION

This invention relates generally to apparatus and methods for use in well completions and, more particularly, is operable for multiple purposes during the insertion and cementing of tubular strings such as casing and liners in the well bore.

[RELATED APPLICATIONS

The present invention is a continuation-in-part of U.S. Patent Application Number 09/524,117, filed March 13, 2001.]

BRIEF DESCRIPTION OF THE PRIOR ART

During the process of drilling a well, it is desirable to stabilize the borehole from collapse of its walls. This may be accomplished by running tubular strings such as well casing or liners into the well bore and may also involve cementing the tubular string in place. The well may then be drilled further, and/or subsequent tubular string(s) may be installed, and/or the completion process may be carried out to begin hydrocarbon production.

For instance, in vertical or horizontal boreholes, or sections of a well having vertical and horizontal boreholes, one or more casing strings may be lowered into the hole and anchored therein by pumping a column of cement into the annulus between the casing string and the wall of the borehole. When lowering casing/liner into the wellbore, it has become conventional practice to fill the casing/liner string with drilling fluid. However due to the weight of the tubular string, surge pressure is created during the process of lowering the casing into the fluid filled wellbore. The surge pressure may damage the formation as fluid is highly compressed and forced into the formation. The surge pressure may be especially great when running close tolerance casings or liners. While devices have been used to permit fluid flow into the casing as it is lowered to thereby reduce surge pressure, problems may still occur due to limited internal casing diameters that restrict the volume of fluid flow and/or restrictions in the casing internal diameter due, for instance, to the internal diameter of float valves in the float equipment. Moreover, cuttings from the well bore may collect and bridge, for instance adjacent restrictions in the casing